EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION

QF-4E, S/N 74-0652
EGLIN AIR FORCE BASE, FLORIDA
6 FEBRUARY 2003

On 6 February 2003, at 0746 Central Standard Time, a QF-4E, Serial Number (S/N) 74-0652, was damaged during an aborted automatic takeoff (ATO) when the manned drone departed the drone runway at Tyndall Air Force Base (AFB), Florida. The mishap pilot (MP) egressed the drone without injury. The mishap aircraft (MA) sustained damage with the loss valued at $1,380,000.00. No personal injuries or damage to private property resulted from the accident.

The MA, callsign Rhino 74, was a full-scale aerial target (FSAT) assigned to the Air Armament Center, Aerial Targets Systems Program Office, Eglin AFB, FL. The MA was on a Systems Acceptance Flight Evaluation (SAFE) mission using a captive (manned with a safety pilot) QF-4E. The MP (safety pilot) is onboard to verify system performance and to take manual control from the remote controller whenever necessary. The Mishap Controller (MC) was remote controlling the aircraft from a fixed control site at the Gulf Range Drone Control System (GRDCS), Tyndall AFB, FL. At 1070 feet into the ATO sequence, the MA experienced an uncommanded right rudder deflection. The MP immediately took control of the MA. The MA departed the prepared surface at 1407 feet from the departure end of the drone runway. The MA traveled another 1050 feet before coming to a stop. After departing the prepared surface, the nose gear collapsed and the MA sustained structural damage to the forward section of the aircraft and forward-installed drone hardware.

There was one primary cause of the accident, supported by clear and convincing evidence. The primary cause was the MA experienced an uncommanded hardover rudder to the right. An abrupt "uncommanded" right rudder input turned the drone away from runway centerline towards the right edge of the runway.

Additionally, there was one factor that substantially contributed to the accident, supported by substantial evidence. The contributory factor was the MP was unable to override the hardover rudder condition and keep the aircraft on the prepared surface. For unknown reasons, when the MP disengaged the drone Automatic Flight Control System (AFCS) and applied controls to counter the right rudder, he was unable to override the hardover rudder.